

In the Claims

This listing of claims will replace all prior versions and listing of claims in the application.

Claims 1-5 (Cancelled).

6. (Currently Amended) ~~The system of claim 5~~ A fuel cell power system comprising:

a plurality of fuel cells configured to generate electrical energy;

a plurality of switch mode power conditioning circuits configured to electrically condition the electrical energy generated by the fuel cells, and wherein the plurality of switch mode power conditioning circuits are associated with the individual fuel cells; and

a controller which generates a control signal, and which monitors an electrical status of the respective fuel cells, and further which adjusts the conditioning of the electrical energy generated by the respective fuel cell using the individual switch mode power conditioning circuits responsive to such monitoring, and wherein the controller includes sequencing circuits ~~configured to apply~~ which applies the control signal from the controller to the respective switch mode power conditioning circuits at different moments in time.

Claims 7-18 (Cancelled).

19. (Currently Amended) ~~The system of claim 16 wherein the fuel cell comprises~~ A fuel cell power system comprising:

a plurality of fuel cells ~~and the switch mode power conditioning circuitry comprises~~
configured to generate electrical energy;

a plurality of switch mode power conditioning circuits ~~associated with the respective~~
~~ones of the fuel cells~~ each comprising a switch, and an electrical energy storage device
and which are configured to electrically condition the electrical energy generated by the
respective fuel cells, and wherein the plurality of switch mode power conditioning circuits
are associated with the respective ~~ones of the fuel cells, and the controller comprises;~~

a battery having a voltage and which is electrically coupled with each of the switch
mode power conditioning circuits, and which further stores the electrical energy generated
by the respective fuel cells; and

a controller which monitors the voltage of the battery, and which further provides a
pulse width modulated control signal having a duty cycle and which controls the switching
of the respective switch mode power conditioning circuits, and wherein the controller varies
the duty cycle of the pulse width modulated control signal to adjust the conditioning of the
electrical energy generated by the respective fuel cells using the respective switch mode
power conditioning circuits in response to the monitoring to substantially maintain the
voltage of the battery within a defined range; and

~~sequencing circuitry configured to apply a~~ which applies the pulse width modulated
control signal to the respective switch mode power conditioning circuits at different
moments in time.

Claims 20-24 (Cancelled).

25. (Currently Amended) ~~The system of claim 22~~ A fuel cell power system
comprising:

a plurality of fuel cells;

a plurality of switch mode power conditioning circuits which each include an energy storage device and a switch, and wherein each of the switch mode power conditioning circuits are configured to electrically condition electrical energy which is generated by the respective fuel cells; and

a controller which provides a plurality of pulse width modulated control signals having a duty cycle to the respective switch mode power conditioning circuits to control the respective switches; monitors an electrical status of the respective fuel cells; and which varies the duty cycles of the pulse width modulated control signals, and wherein the controller adjusts the conditioning of the electrical energy generated by the respective fuel cells by utilizing the respective switch mode power conditioning circuits in response to the monitoring, and wherein the controller further includes a sequencing circuit electrically coupled with the respective switch mode power conditioning circuits and configured to receive which receives at least one of the pulse width modulated control signals, and to apply which applies a first of the pulse width modulated control signals to a first of the switch mode power conditioning circuits at a first moment in time, and to apply applies a second of the pulse width modulated control signals to a second one of the switch mode power conditioning circuits at a second moment in time, which is after the first moment in time.

26. (Currently Amended) ~~The system of claim 22~~ A fuel cell power system
comprising:

a plurality of fuel cells;

a plurality of switch mode power conditioning circuits each including an energy storage device, and a switch, and wherein the respective switch mode power conditioning circuits electrically condition electrical energy which is generated by the respective fuel cells; and

a controller which provides a plurality of pulse width modulated control signals which have a duty cycle to the respective switch mode power conditioning circuits to control the respective switches, and wherein the controller further monitors an electrical status of the respective fuel cells, and varies the duty cycle of the pulse width modulated control signals to adjust the conditioning of the electrical energy in response to the monitoring, and wherein the controller is configured to apply applies the pulse width modulated control signals to the respective switch mode power conditioning circuits at different moments in time during a switching period.

Claims 27-31 (Cancelled).

32. (Currently Amended) ~~The method of claim 28 wherein the generating comprises~~ A method of operating a fuel cell power system comprising:

~~generating electrical energy using a plurality of fuel cells and the conditioning comprises;~~

conditioning the electrical energy using a plurality of switch mode power conditioning circuits individually associated with respective ones of the fuel cells, and wherein the adjusting comprises the switch mode power conditioning circuits each comprise a switch, and an electrical energy storage device;

providing a pulse width modulated control signal to control the respective switches;
monitoring an electrical status of the respective fuel cells; and
adjusting the condition of the electrical energy generated by the respective fuel cells
in response to the monitoring, and wherein the adjusting comprises varying a duty cycle of
the pulse width modulated control signal, and applying the pulse width modulated control
signal to the respective switch mode power conditioning circuits at different moments in
time.

Claims 33-44 (Cancelled).

45. (Currently Amended) ~~The method of claim 41 wherein the generating~~
~~comprises~~ A method of operating a fuel cell power system comprising:

generating electrical energy using a plurality of fuel cells and the conditioning
comprises;

conditioning the electrical energy by using the a switch mode power conditioning
circuitry comprising a plurality of switch mode power conditioning circuits associated with
the respective fuel cells, and further comprising and wherein each of the switch mode
power conditioning circuits comprises a switch and an electrical energy storage device
configured to electrically condition the generated electrical energy;

controlling the respective switches by using a pulse width modulated control signal;

storing the electrical energy generated within a battery;

monitoring a voltage of the battery;

adjusting the conditioning of the electrical energy by using the plurality of switch
mode power conditioning circuits in response to the monitoring of the voltage of the battery.

and wherein the adjusting further comprises increasing a duty cycle of the pulse width modulated control signal in response to the voltage of the battery being below a first threshold, and decreasing the duty cycle of the pulse width modulated control signal in response to the voltage of the battery being above a second threshold;

providing electrical energy from the respective switch mode power conditioning circuits to a load; and

applying a the pulse width modulated control signal to the switch mode power conditioning circuits at different moments in time to control the respective switches of each of the switch mode power conditioning circuits.

46. (Original) A method of operating a fuel cell power system comprising:
generating electrical energy using a plurality of fuel cells;
conditioning the electrical energy of the fuel cells using a plurality of switch mode power conditioning circuits individually including an electrical energy storage device and a switch; and

providing a plurality of control signals to the switch mode power conditioning circuits during a switching period to control the respective switches, wherein the providing the control signals comprises applying the control signals to the switch mode power conditioning circuits at different moments in time during the switching period.

47. (Original) The method of claim 46 wherein the providing comprises providing a common signal and sequencing the common signal to provide the plurality of control signals.

48. (Original) The method of claim 46 wherein the providing comprises providing the control signals comprising a plurality of different control signals, and sequencing the different control signals.

49. (Original) The method of claim 46 wherein the conditioning electrical energy comprises conditioning electrical energy of the fuel cells using the switch mode power conditioning circuits associated with respective ones of the fuel cells.

50. (Original) The method of claim 46 further comprising:
monitoring an electrical status of the fuel cells; and
adjusting the control signals responsive to the monitoring.

51. (Original) The method of claim 50 wherein the providing comprises providing the control signals comprising pulse width modulated control signals and the adjusting comprises adjusting duty cycles of the control signals.

52. (Original) The method of claim 50 wherein the monitoring comprises monitoring the electrical status comprising individual voltages of the fuel cells, and the adjusting comprises reducing a duty cycle of one of the control signals responsive to the voltage of the respective fuel cell being outside a predetermined range.

53. (Original) The method of claim 50 wherein the monitoring comprises monitoring the electrical status comprising individual voltages of the fuel cells, and the

adjusting comprises reducing duty cycles of the control signals responsive to the voltages of the respective fuel cells being below a threshold.

54. (Original) The method of claim 46 further comprising:
providing electrical energy to a battery coupled with the switch mode power conditioning circuits;
monitoring an electrical status of the battery; and
adjusting the control signals responsive to the monitoring to maintain the electrical status of the battery within a range.